core tube and an exhaust suction pump connected to the gas discharge pipe;

a first gas discharge rate controlling means for controlling a discharge rate of the gas discharged by the first gas discharging means;

a gas feed branch pipe connected to the gas discharge pipe between the first gas discharge rate controlling means and the exhaust suction pump; and

a second gas feeding means connected to the gas feed branch pipe for feeding a second gas, which comprises nitrogen or air, to the gas discharge pipe.

2. (Once Amended) A porous preform vitrification apparatus as set forth in claim 1, further comprising a drain conduit connected to the gas feed branch pipe connected to the second gas feeding means .

3. (Once Amended) A porous preform vitrification apparatus as set forth in claim 1, further comprising a mechanism for detecting a pressure difference between a pressure in the furnace core tube and a pressure in a heating furnace body provided at an outer circumference of the furnace core tube, and for comprehensively controlling:

a feed rate of the first gas to the furnace core tube,

a discharge rate of an exhaust gas from the furnace core tube,

a feed rate of an inert gas into the heating furnace body,

a discharge rate of the gas from the interior of the heating furnace body,

a feed rate of the second gas fed to the gas feed branch pipe, and

a gas discharge rate of the discharge gas at the exhaust suction pump based on the detected differential pressure signal with the pressure in the furnace core tube as a reference.

4. (Once Amended) A porous preform vitrification apparatus as set forth in claim 3, wherein the feed rate of the second gas fed from the gas feed branch pipe is controlled to 15 to 50% of the rate of the treatment gas essentially consisting of helium fed to the furnace core

tube.

5. (Once Amended) A group of porous preform vitrification apparatuses comprised of a plurality of porous preform vitrification apparatuses as set forth in claim 1 or 2 arranged in parallel, wherein:

the exhaust suction pump is provided for every porous preform vitrification apparatus, and

a common exhaust gas treatment device is provided on the discharge side of the exhaust suction pumps.

Please add the following new claims:

6. (New) A porous preform vitrification apparatus comprising:

a furnace core tube accommodating a porous preform, a heating furnace surrounding the furnace core tube and heating the furnace core tube, a first means for feeding a gas essentially consisting of helium to the furnace core tube, a feed rate controlling means, a discharging means, and a discharge rate controlling means,

wherein a gas feed branch pipe is connected to a section of a gas discharge pipe connecting the furnace core tube and an exhaust suction pump and in that nitrogen or air is fed from a second gas feeding means provided at the front end of the gas feed branch pipe, and

wherein a drain conduit is connected to the gas feed branch pipe connected to the second gas feeding means.

7. (New) A porous preform vitrification apparatus as set forth in claim 6, further comprising a mechanism for detecting a pressure difference between a pressure in a furnace core tube and a pressure in a heating furnace body, and comprehensively controlling:

a feed rate of the gas to the furnace core tube,

a discharge rate of an exhaust from the furnace core tube,

a feed rate of an inert gas into the heating furnace body,

a discharge rate of the gas from the interior of the heating furnace body,

a feed rate of a gas such as nitrogen fed to the gas feed branch pipe, and

a gas discharge rate of the exhaust suction pump based on a differential pressure signal with the pressure in the furnace core tube as a reference.

8. (New) A porous preform vitrification apparatus as set forth in claim 7, wherein the feed rate of the nitrogen or air fed from a nitrogen or other gas feed branch pipe is controlled to 15 to 50% of the rate of the treatment gas essentially consisting of helium fed to the furnace core tube.

9. (New) A group of porous preform vitrification apparatuses comprised of a plurality of porous preform vitrification apparatuses as set forth in claim 6 arranged in parallel, wherein:

an exhaust suction pump is provided for every porous preform vitrification apparatus, and

a common exhaust gas treatment device is provided on the discharge side of the exhaust suction pumps.